National Climatic Data Center

DATA DOCUMENTATION

FOR

DATA SET 9767A (DSI-9767A)
Pre-1951 Cooperative Station Histories

December 30, 2002

National Climatic Data Center
151 Patton Ave.
Asheville, NC 28801-5001 USA

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1.   **Abstract**: The Pre-1951 Cooperative Station Histories Data Set includes important information about meteorological observing stations in the National Weather Service Cooperative Observation Network prior to 1951. This data set was created to compliment the existing NCDC Station History Data Set TD-9767 (now DSI-9767b) that contains station histories beginning in 1948 and continuing to the present.

Station histories, or metadata (data about other data), contain information about individual stations such as the station ID number and the name of the station in order to reference data in other sets listed solely under an ID number with an actual station name. In addition, a station history includes data about all the locations that the station has occupied over time including the exact location, elevation, exposure of instruments, types of instruments, whether or not the data recorded was published, the period of record at each location, and the observers during that period.

Much of these data were compiled into a concise format and onto Form WB-530 by the National Weather Service (then known as the Weather Bureau - thus WB-530). These, along with other station history forms were and are currently sent to the NCDC to be archived and processed for use. As part of the ESDIM (Earth Systems Data Information Management) project, the WB-530s were compiled for each state and a pre-key edit was undertaken to perform limited quality control to correct obvious errors in the data before it was to be entered digitally into a database. After the keying effort was completed additional checks were run on the data to assure the data was internally compatible with itself, i.e. there were no overlapping period of records for one station, etc. However, errors in the data that were not obvious at the time of the pre-key and post-key edit remain.

*NOTE regarding Stop Date: Station histories for the eight Great Lakes states [Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, and New York] were the first ones keyed into the database as part of a research project for that region. Data entered included station history information for these states up through 1990. The project was later expanded to include station histories for the remaining 40 contiguous states, but only data through 1950 was entered since a post-1947 station history data set already exists.

2.   **Element Names and Definitions**:

ASCII Format for the Pre-1951 Cooperative Station Histories

Each of the elements of the Form WB-530 database was converted to a 64-character (fixed length) ASCII record. Positions 1 - 12 inclusive contain identifying information, position 13 contains an edit flag, position 14 is blank, and positions 15 - 64 inclusive contain the value of the element (left-justified).

Element	Position	Description
STNID	1 - 6	Station identification number; a two-digit state number followed by a four-digit station number.
LOC	7 - 8	Location Number - a station may have several locations and still use the same STNID as long as the change in latitude, longitude, or elevation is considered climatologically insignificant. Record

		types (see RECTYP below) 01 - 13 pertain to all locations and are assigned 00 for the LOC.
RECTYP	9 - 10	Each unique element of this data base is assigned a two-digit RECTYP number. These record types are listed on the attached WB-530 ELEMENT DESCRIPTION
SEQNUM	11 - 12	Each of the remarks elements (fields), i.e., record types 12, 39, and 60 - 77 inclusive are free-form and may be any length. These remarks are broken into consecutive 50-character records and prefixed in positions 1 - 14 with identifying information. The Sequence Number (SEQNUM) is assigned beginning with 01 for the first 50 characters and is incremented by 1 for each successive 50 characters until the entire remark has been written.
EDIT-FLG	13	The Edit Flag was used for internal processing to indicate that: a correction was made that does not match the entry on the original WB-530 form (1); or that the reviewer suspects that the entry on the WB-530 is incorrect, but no correction was made ("2"). The default value of this field is "0". Other values might appear due to various processing methods, but these should be ignored.
Reserved	14	Blank
VALUE	15 - 64	The value of the element specified by RECTYP.

Data are sorted in the following manner starting with the first criteria:

    State Number (first two digits of Cooperative Index Number - STNID)
    Station Number (digits 3 through 6 of Cooperative Index Number - STNID)
    Location Number (LOC - beginning with 00 for each station)
    Record Type Number (RECTYP)
    Sequence Number (SEQNUM)

For all Element Descriptions, the following general notes apply:

1. All decimal points are explicit, i.e. decimal points actually appear in data fields.
2. Character fields are left justified, numeric fields are right justified with leading zeros, such as 00154.6
3. In general, unless otherwise specified, missing data in character fields are left blank, and missing data in numeric fields are keyed as "999999" to fill the entire field or portion of field as needed. (For instance, 07/99/1890 is valid and means July, 1890 <specific date unknown>.)

The following Record Types 01-13 inclusive apply to all locations of one station and are listed only once for each unique station ID number. (These RECTYP 01-13 are keyed under location number LOC 00.

Element (Field) Name	Width	Record Type	Description
INDX_NUM	6 [N]	01	Cooperative Index Number [Station ID Number] (2-digit state number plus 4-digit station number)
INDX_DIV	2 [N]	02	Division number portion of Cooperative Index #; range of values include '01' through '10' and '99'(unknown).
STN_NAME	22 [C]	03	Station name
STN_QUAL	22 [C]	04	Station name qualifier, e.g., Fire Tower #2.
CNTY_NAME	40 [C]	05	County name
STAT_NAME	15 [C]	06	State Name
STAT_ABBR	2 [C]	07	State Post Office abbreviation, e.g., NC or FL.
PREP_DATE	10 [C]	08	Date of WB-530 form preparation in the syntax **MM/DD/YYYY**; unknown = **99/99/9999**.
PREP_OFFCE	30 [C]	09	The office where the WB-530 form was prepared; syntax = Office, City, State abbreviation. Example: WBAS, Harrisburg, PA **Note**: For some stations, an abbreviation was listed in the PREP_OFFCE field. See the list for **Records Originally Located Abbreviations** under section for ORIG_NAME elements [Record Types 51-53].
POS_TOTAL	2 [N]	10	The total number of locations for this station. (How many times the station was at a different geographic location, but not enough change in lat., lon., or elevation to cause a new station number assignment.)
MAST_NUM	11 [N]	11	Master number -- not entered as part of the WB-530 project and should contain "**99999999999**".

SUS_GEN	V [B]	12	General comments pertaining to the station. Element also contains link information whenever available. Link info should adhere to the following syntax: **!P****** c,X****** c;**(form-free comments follow the semicolon) where:
			! = indicates that this station s link information follows
			P = indicates that the station is linked to a previous station
			X = indicates that the station is linked to a station that exists later
			****** = the six-digit station number to which this station is linked
			c = this position [C] contains one of the following to indicate the degree of compatibility of the linked station to this station:
			Y = station is compatible
			N = station is not compatible
			- = unknown compatibility
LINK_VAL	6 [C]	13	Link value should be blank.

The following Record Types 14 - 77 inclusive are repeated POS_TOTAL times for each unique station ID number.

POS_NUM	2 [N]	14	The location number of the station to which the following elements pertain (Record Types 14 - 77 inclusive).
LAT_DEG	2 [N]	15	Whole degrees of latitude. Allowable ranges 23 to 50.
LAT_MIN	2 [N]	16	Minutes of latitude. Allowable ranges 00 to 60.
LAT_SEC	2 [N]	17	Seconds of latitude. Allowable ranges 00 to 60.
LAT_HEM	1 [C]	18	Hemisphere of latitude -- N .
LON_DEG	3 [N]	19	Whole degrees of longitude. Allowable ranges 066 to 125.
LON_MIN	2 [N]	20	Minutes of longitude. Allowable ranges 00 to 60.

LON_SEC	2 [N]	21	Seconds of longitude. Allowable ranges 00 to 60.
LON_HEM	1 [C]	22	Hemisphere of longitude -- W.
TOWN_SEC	2 [C]	23	Township info - section - a 2-digit number
TOWN_TWN	4 [C]	24	Township info - township - a 3-digit number followed by N or S , otherwise - .
TOWN_RNG	3 [C]	25	Township info - range - a 2-digit number followed by W or E, otherwise -
ELEV_NUM	5 [N]	26	Elevation of the station location in whole feet above mean sea level; unspecified = **99999.**
DIST_RFPT	7 [N]	27	Distance of station location from the nearest Post Office (unit of distance to nearest 0.1 unit).
UNIT_RFPT	1 [C]	28	Units of DIST_RFPT. Allowable values are: **M** = miles **F** = feet **Y** = yards **B** = blocks
DIR_RFPT	3 [C]	29	Direction of station location from the nearest Post Office (16-point compass directions), i.e., **N, NNE, NE, ENE, E, ESE, SE, SSE, S, SSW, SW, WSW, W, WNW, NW, NNW.**

Note: If no information is available on the WB-530 form for reference from Post Office, then DIST_RFPT = **99999.9** , UNIT_RFPT and DIR_RFPT are **blanks**.

DIST_PREV	7 [N]	30	Distance of station location from the previous location (unit of distance to nearest 0.1 unit).
UNIT_PREV	1 [C]	31	Units of UNIT_PREV. Allowable values are: **M** = miles **F** = feet **Y** = yards **B** = blocks

DIR_PREV   3 [C]   32   Direction of station location from
                                             the previous location (16-point
                                             compass directions), i.e., **N, NNE,
                                             NE, ENE, E, ESE, SE, SSE, S, SSW,
                                             SW, WSW, W, WNW, NW, NNW.**

Note: If no information is available on the WB-530 form for reference from
previous location, then DIST_PREV = **99999.9** , UNIT_PREV and DIR_PREV are
blanks.

The following three fields (RFPT_NAME, RFPT_QUAL, and RFPT_STATE) which
consists of the name of the Post Office that the station is closest to, but
ONLY if the Post Office name and the station name are **NOT** the same. All three
fields are supposed to contain blanks if the Post Office name and the station
name matches. However, the key entry software automatically entered the state
abbreviation for RFPT_STATE in most cases.

RFPT_NAME   22 [C]   33   Closest Post Office name.

RFPT_QUAL   22 [C]   34   Closest Post Office qualifier.

RFPT_STATE   2 [C]   35   State abbreviation of closest Post
                                             Office.

STN_ALIAS   22 [C]   36   The name by which the station was
                                             known during its existence at this
                                             location. May be different from
                                             STN_NAME.

ALIAS_QUAL   22 [C]   37   The qualifier by which the station
                                             was known during its existence at
                                             this location. May be different
                                             from STN_QUAL.

ALIAS_STAT   2 [C]   38   The state abbreviation of the
                                             station during its existence at this
                                             location. May be different from
                                             STAT_ABBR.

NOTE: If the WB-530 form did not contain station alias information for a
location, the station alias of the next location of that station , if
available, was used. If no station alias information was available for a
location, these fields were left blank except for the software-produced
ALIAS_STAT.

EXPO_MAIN   V [B]   39   General comments in free-form and
                                             unlimited length that pertain to the
                                             exposure of the station location

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The following 11 fields pertain to instrumentation at the location. Since
there are only ten instrument type fields, if there are more than ten
instruments, the additional instruments are listed in the SUS_INS comment
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field using the format **!XXXX, XXXX, etc.;** where **XXXX** is the standard
instrument abbreviation listed just below this section. If the abbreviation
of an instrument in use at a station is not found on the Standard Abbreviation
of Instruments List (SAIL), **AI** is entered in the instrument type field and the
instrument is described in the SUS_INS comment field.

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INSTR_NUM          2 [N]        40      The number of instruments at this
                                        location.

INSTR_U01          7 [C]        41      Instrument #1 abbreviation

INSTR_U02          7 [C]        42      Instrument #2 abbreviation

INSTR_U03          7 [C]        43      Instrument #3 abbreviation

INSTR_U04          7 [C]        44      Instrument #4 abbreviation

INSTR_U05          7 [C]        45      Instrument #5 abbreviation

INSTR_U06          7 [C]        46      Instrument #6 abbreviation

INSTR_U07          7 [C]        47      Instrument #7 abbreviation

INSTR_U08          7 [C]        48      Instrument #8 abbreviation

INSTR_U09          7 [C]        49      Instrument #9 abbreviation

INSTR_U10          7 [C]        50      Instrument #10 abbreviation
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Standard Abbreviation of Instruments List (SAIL)

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//FP        Shielded Fischer Porter Rain Gage
//RRNG      Shielded Recording Rain Gage
//SRG       Shielded Standard Rain Gage (Non-Recording)
12"RRNG     12 Inch Recording Rain Gage
3"RG        3 Inch Rain Gage
4"RG        4 Inch Rain Gage
A           Anemometer
AI          Additional Instruments (More than 10 instruments listed or
            non-standard abbreviation listed, see SUS_INS comment field
            for details)
ADR         <unknown>
B           <unknown>
BA          Barometer (Aneroid)
BDT         Binary Decimal Transmitter
BG          Barograph
BM          Barometer (Mercurial)
BPIS        Bureau of Plant Industry Shelter
CEILOM      Ceilometer
CLINOM      Clinometer
CRS         Cotton Region Shelter
DARDC       Device for Automatic Data Collection
DGT         Digital Thermometer
DT          Dry-Bulb Thermometer
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EVA          Evaporation Equipment (Class A)
EVO          Evaporation Equipment (Other Than Class A Equipment)
FP           Fischer/Porter
HYGRO        Hygrothermometer
HYTHG        Hygrothermograph
MCBG         Microbarograph
MMTS         Max-Min Telemetering System
MN           Minimum Thermometer
MX           Maximum Thermometer
NRIG         Non-Recording River Gage
NSRG         Non-Standard Rain Gage (Non-Recording)
NSS          Non-Standard Shelter
PSY          Psychrometer
PSYFAN       Psychrometer Fan
PYH          Pyheilometer
RG           Rain Gage (Generic)
RRIG         Recording River Gage
RRNG         Recording Rain Gage
SB           Snow Bin
SCALE        Snow Scales
SDE          Snow Density Gage
SG           Storage Gage
SOIL         Soil Thermometers (See also ST)
SRG          Standard Rain Gage (8 Inch)
SS           Standard Shelter
SSREC        Sunshine Recorder
SST          Sixes Type Thermometer
ST           Soil Thermometers (See also SOIL)
STICK        Snow Stick
SWT          Storm Warning Tower
TB           Tipping Bucket Rain Gage (Recording)
TELMRK       Telemark (River Gage)
TG           Thermograph
VANE         Wind Vane
TRIPREG      Triple Register
WEDGE        Wedge Shaped Gage (See also WSG)
WSG          Wedge Shaped Gage (See also WEDGE)
WT           Wet-Bulb Thermometer
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* NOTE * 1st Order Equipment is encoded as: MX, MN, SRG, CRS, A, VANE, BM,BG,CEILOM,CLINOM,PSY,PSYFAN with an accompanying suspect remark.

Full Climatological Station is encoded as: MX, MN, CRS, SRG, with an accompanying suspect remark.

ORIG_NAME	22 [C]	51	Name of location of original records, e.g., **Minneapolis**
ORIG_QUAL	22 [C]	52	Qualifier of location of original records, e.g., **WBAS**
ORIG_STATE	2 [C]	53	Abbreviation of the state of location of original records, e.g., **MN**

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Notes: 1. In the majority of cases, all original records for most stations were eventually shipped to the National Climatic Data Center in Asheville, NC (NCDC). 2. If more than one location is given for original records, the additional locations will be recorded in the SUS_ORI field. 3. For some locations, an abbreviation was listed in the ORIG_NAME field. See the list below for abbreviations:

Records Originally Located Abbreviations

BPI	Bureau of Plant Industry
CO	Central Office
NARC	National Archives
NCC	National Climatic Data Center (Asheville, NC)
NCDC	National Climatic Data Center (Asheville, NC)
NWRC	National Climatic Data Center (Asheville, NC)
RCD	Rain Charts Depository (Louisville, KY) - uncertainty exists regarding this abbreviation (RCD)
RSMS	<unknown>
RSMU	<unknown>
SCS	Soil Conservation Service
SI	Smithsonian Institute
TVA	Tennessee Valley Authority
USE	U.S. Corps of Engineers
USGS	U.S. Geological Survey
WBAS	Weather Bureau Air Station
WBO	Weather Bureau Office
WRPC	Weather Records Processing Center - uncertainty exists regarding this abbreviation (WRPC)

PUB_LOC	30 [C]	54	The publications in which the data for the specified location were published, e.g., **HB, CD, HPD**; as defined below...

Publication List Abbreviations

BQ	Bulletin Q
BW	Bulletin W
CD	Climatological Data
CDNS	Climatological Data National Summary
CRB	Climatological Record Book
CSB	Climate and Crop Bulletin
CWB	Report to the Chief of the US Weather Bureau
CWB	Report to the Chief Signal Officer
DRS	Daily River Stages
HB	Hydrological Bulletin
HPD	Hourly Precipitation Data
LCD	Local Climatological Data
MWR	Monthly Weather Review
MYB	US Meteorological Yearbook
NEMS	New England Meteorological Society
RVR-WSP	River-Water Supply Papers
SB	Snow Bulletin
SGPD	Storage Gage Precipitation Data
TVA	Tennessee Valley Authority
WSP	Water Supply Papers

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     WST          <unknown>
     WWR          Weekly Weather Review
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BEGIN_DATE        10 [C]      55      The date of the first observation at
                                      this location.  Syntax: MM/DD/YYYY;
                                      unknown = 99/99/9999"

END_DATE          10 [C]      56      The date of the last observation at
                                      this location.  Syntax: MM/DD/YYYY;
                                      unknown = 99/99/9999"

OBS_NAME          34 [C]      57      The name of the observer or
                                      observing group/institution.

OBS_BEGIND        10 [C]      58      The start date of the observer named
                                      in the OBS_NAME field.

OBS_ENDD          10 [C]      59      The ending date of the observer
                                      named in the OBS_NAME field.
```

Note: Additional observers are entered in the ADD_OBS field using the following formats:

    1. Additional observer with associated dates:
    !NNNNNNNNNN,MM/DD/YYYY,MM/DD/YYYY:NNNNNNNNNN,MM/DD/YYYY;
    Where **!NNNNNNNNNN,MM/DD/YYYY,MM/DD/YYYY:NNNNNNNNNN,** = observer name, observer begin date, observer end date: next observer name, begin date, end date and so on to end of list ;

    2. Additional observer without associated dates: **NNNNNNNNNN:NNNNNNNNNN;**

Record Types 60 - 77 inclusive, which are all comment fields, follow:

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REMARKS_MN        V [B]       60      General remarks pertinent to the
                                      entire location.

ADD_OBS           V [B]       61      Additional observers.

SUS_LAT           V [B]       62      Comments regarding the latitude of
                                      this location.

SUS_LON           V [B]       63      Comments regarding the longitude of
                                      this location.

SUS_TWN           V [B]       64      Comments regarding the township
                                      information for this location.

SUS_ELV           V [B]       65      Comments regarding the elevation of
                                      this location.

SUS_DPO           V [B]       66      Comments regarding the distance and
                                      direction from Post Office for this
                                      location.

SUS_PON           V [B]       67      Comments regarding the name of Post
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:                                12:
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                                     Office for this location.

SUS_PRN              V [B]      68    Comments regarding the previous
                                     location.

SUS_SNN              V [B]      69    Comments regarding the station name
                                     for this location.

SUS_DES              V [B]      70    Additional comments concerning
                                     exposure.

SUS_INS              V [B]      71    Comments regarding instruments for
                                     this location. (Additional
                                     instruments indicated by  !
                                     notation.

SUS_ORI              V [B]      72    Comments regarding the location of
                                     the original records.

SUS_WPB              V [B]      73    Comments regarding publications.

SUS_1OD              V [B]      74    Comments regarding the beginning
                                     observation date for this location.

SUS_NOD              V [B]      75    Comments regarding the ending
                                     observation date for this location.

SUS_ONM              V [B]      76    Comments regarding the observer for
                                     this location.

SUS_RMK              V [B]      77    Additional comments regarding this
                                     location.
```

LEGEND:

 V = field contains a variable number of characters

 [B] = field contains a variable-size stream of characters

 [C] = field contains character data

 [N] = field contains numeric data

3. **Start Date**: 18509999

4. **Stop Date**: 19901231

NOTE regarding Stop Date: Station histories for the eight Great Lakes states [Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, and New York] were the first ones keyed into the database as part of a research project for that region. Data entered included station history information for these states up through 1990. The project was later expanded to include station histories for the remaining 40 contiguous states, but only data through 1950 was entered since a post-1947 station history data set already exists.

5. **Coverage**: North America

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:   13:

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       a. Southernmost Latitude:        23N
       b. Northernmost Latitude:        50N
       c. Westernmost Longitude:       125W
       d. Easternmost Longitude:        66W
```

6.   How to Order Data:

Ask NCDC's Climate Services about the cost of obtaining this data set.
Phone: 828-271-4800
FAX: 828-271-4876
E-mail: **NCDC.Orders@noaa.gov**

7.   Archiving Data Center:

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, NC 28801-5001
Phone: (828) 271-4800.

8.   Technical Contact:

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, NC 28801-5001
Phone: (828) 271-4800.

9.   Known Uncorrected Problems: At the time of compilation of this
documentation, there were no known uncorrected problems. However, it is
certain that errors do exist in the data, but they cannot be determined at
this time. At some point in the future, this data set will be merged with the
post-1947 Station History file TD-9767 (DSI-9767b) via the SHIPS (Station
History Information Production System) and the resulting overlap in period of
record will undoubtedly reveal some errors contained in this data set.

10.   Quality Statement: These station histories have been subjected to limited
quality control (QC), primarily internal consistency checks for beginning and
ending dates and gross checks for latitude, longitude, and elevation changes.
Software for identifying probable key entry errors assisted NCDC personnel
with these and other checks that resulted in many corrections, but the NCDC
does NOT claim that these files are error free.

11.   Essential Companion Datasets: The Station History file TD-9767b contains
station history data beginning in 1948. Any investigations of station
histories beyond 1947 should include data from the data set TD-9767b.

12.   References: No information provided with original documentation.